FACTS Reports

Field Actions Science Reports
The journal of field actions

Vol. 3 | 2009
Vol. 3

Making eyeglasses accessible to the very poor: Creating a market in rural India

Patrick Cherrier and Bhuvaraghan Jayanth

OpenEdition Journals

Electronic version
URL: http://journals.openedition.org/factsreports/355
ISSN: 1867-8521

Publisher
Institut Veolia

Electronic reference
Patrick Cherrier and Bhuvaraghan Jayanth, « Making eyeglasses accessible to the very poor: Creating a market in rural India », *Field Actions Science Reports* [Online], Vol. 3 | 2009, Online since 20 October 2009, connection on 30 April 2019. URL : http://journals.openedition.org/factsreports/355

Field Actions Science Report
www.factsreports.org

FACTS Reports

Making eyeglasses accessible to the very poor – Creating a market in rural India

P. Cherrier[1] and B. Jayanth[2]

[1] President, Essilor, Asia
[2] Vice-President, Essilor, South Asia

Abstract. In rural India, several hundred million people need glasses to see properly, but low incomes and difficulty of access to prescriptions prevent them from doing so. After identifying the demand and investigating the market with the assistance, in particular, of Indian hospitals, we designed a very low-cost Essilor production line and distribution circuit using mobile vans. As a result, we can sell spectacles for as little as a few dollars. The system has been running since 2005 and the economic model seems to be validated. Sales are still on the low side, but we consider that this is an economic enterprise in its own right which is only now emerging.We are considering how it could be implemented and rolled out to other countries.

Keywords. Hospitals, eye sight, India, health delivery

1 Introduction

India is a huge country, territorially structured into twenty-eight States. The total population is in excess of 1.1 billion people, of which 54% are under twenty-five. Economic growth in 2007 was approximately 8% per annum. In about thirty years, India could be, together with China and the United States, one of the three leading global economies. India is a young and democratic country with no lack of promising entrepreneurial spirit turned to development and private initiative.

The population is distributed geographically over six hundred large cities, more than four thousand medium-sized towns and some six hundred and forty thousand villages. Twenty-two official languages are spoken there and over one thousand six hundred dialects with, in rural areas particularly, a profusion of local variations.

The rural population totals some seven hundred and fifty million people. In just a few decades, mental attitudes have changed considerably. Originally inclined mainly to resignation and a fatalistic acceptance of what life has to offer, they have become much more voluntarist and keen to have access to a more prosperous lifestyle and to advantages that other more privileged people already enjoy. Innovation and new products are therefore favourably received.

But this rural population is cruelly lacking in financial resources, despite generally improving prosperity, as evidenced by the sustained lessening over the past ten years of the number of people with very low incomes. The average earnings of a worker are still meagre: one dollar per day, i.e. about fifty Rupees, which is barely enough to support a family.

The rural market is of immense dimensions. Because of fragmentation into a multitude of villages, products are not available everywhere. As a result, unlike in the cities, there is no direct competition between products. To make a sale, all a manufacturer needs is to be in the right place with a marketable offer.

In recent years, the rural market has gone through a profound change. There is a growing expectation and much greater demand for commodities which are better suited to local needs – consumers are no longer willing to buy urban leftovers and even less those of foreign countries – and there is a greater appreciation of branded products. Poor families often prefer to buy tiny portions of a high quality and recognised product rather than larger quantities of a mediocre or unbranded item. A leading manufacturer of toiletries was quick to see this as an opportunity for gaining a large share of the market; the packaging of the product was modified so that it could be sold in small doses sufficient for single use.

Although largely illiterate, the client base is not unsophisticated: they are well able to use high technology items even though they cannot read. Mobile telephones are spreading very swiftly. The number of Internet kiosks is increasing. More people are getting into the habit of borrowing money, in particular to take care of their health.

Eyesight problems abound in India. They are a major public health issue with an important social – not to mention economic – impact. There are two main categories of visual impairment: cataracts and uncorrected refraction disorders.

Correspondence to: Bhuvaraghan Jayanth
(jayanthb@essilor.com.sg)

Figure 1. Essilor in the world.

Cataracts are responsible for the large numbers of blind people in rural areas. Refraction disorders are extremely common. A study of four thousand children carried out in 2000-2001 by a specialised institute in the rural areas of the district of Mahbubnagar evidenced no less than 61% of uncorrected refraction disorders. Altogether, in India, there are only eighty million corrective lenses in circulation for a population numbering over a billion individuals. This very low figure shows that the proportion of unfulfilled requirements is considerable. These visual conditions (myopia, hypermetropia, etc.) are central to Essilor's field of expertise, which is why we took a special interest in them.

2 Essilor in india

In 2009, Essilor is the world's leading manufacturer of corrective lenses, with a turnover of € 3 billion. The French market represents approximately 10% of Essilor's total workforce and total sales but a little more in terms of turnover because more sophisticated products are sold there. However, Essilor is now a global company (Figure 1).

The Group began relocating production nearly thirty years ago. Essilor's big manufacturing plants, in countries such as the Philippines and Thailand, have a history that is already long. Relocations were designed to lower production costs and they enabled Essilor to gain a foothold in promising new markets. The relocations did not give rise to any particular problems in France and they helped to finance research and encouraged workforce reconversion to other qualifications. As a result of the Group's globalisation policy, a number of senior staff members acquired useful local expertise. They are well aware of the conditions prevailing in poor countries and shantytowns. Our Indian undertaking was built on this body of experience. Two works also inspired us.[1]

The global ophthalmic lens market represents € 9 billion, which is not extremely large. Essilor's share of it is one third, largely due to our successful globalisation policy. Essilor India was created in 1998. After buying up a large factory in Bangalore from SRF, Essilor constructed and bought small businesses, called "lens finishing laboratories". Just like garments, optical lenses are made in two phases: in a factory for the "semi-finished" product and then in a laboratory for finishing. Annual growth has been around 60% since 1998. In the next twenty years, the Chinese and Indian markets' share in

[1] C.K. Prahalad, The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits, International Journal of Productivity and Performance Management, 2005, Volume: 54, Issue: 2, Publisher: Emerald Group Publishing Limited

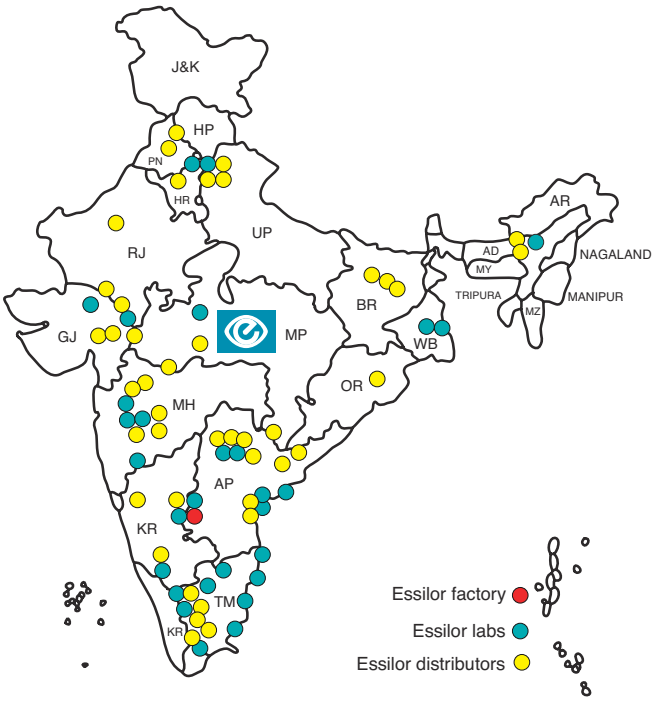

Figure 2. Essilor India.

the Group's activity could catch up with the sales in the United States and Europe, in volume at least, which is ample justification for the bold strategies we adopted in those two countries. In India, Essilor is the market leader. Some forty sites distributed over the entire country (laboratories and storage centres) belong to the Group. We plan to arrive at one hundred establishments, as in the United States, for a comparable geographic area (Figure 2).

3 The top and the bottom of the pyramid

3.1 Top to bottom

When the Group first arrived in India in 1998, the intention was to work mainly with professionals in the optical industry operating in towns, i.e. where a part of the client base is at the "top of the pyramid" and enjoys a relatively high level of purchasing power. In view of the significant numbers involved, Essilor could have been content with this source of growth opportunity. However, in suburban and rural areas, there is a considerable need for our products. Hundreds of millions of people have no access to professional eye specialists and cannot therefore get eyeglasses. But good eyesight is essential for people to lead a normal and productive life. As much for the sake of helping the local population as to strengthen its world leader position, Essilor wanted to provide for the market as a whole, not just those at the top of the pyramid (Figure 3). Professionals prescribing eyeglasses were all in town centres, whereas two thirds of the Indian population lives outside of the big cities. The problem to be solved was how to give them access to comparable products and services in the absence of any organised prescription and sales network.

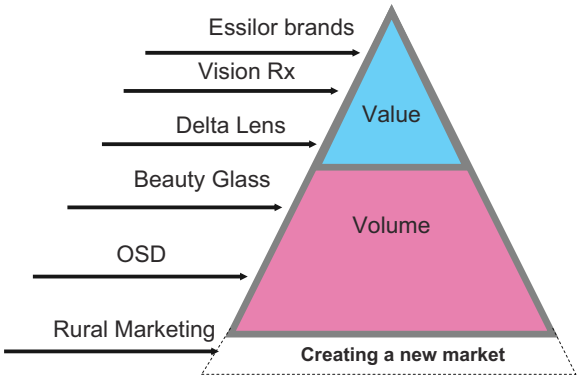

Figure 3. Multiple channel approach.

3.2 From the suburbs to rural areas

To distribute spectacles away from city centres, Essilor India designed and implemented a novel distribution system: selling glasses in mobile optical units. These came as a complement to the mobile ophthalmology units operated by the Aravind Eye Care System hospitals, specialising in the treatment of ophthalmic conditions.

Aravind was providing treatment in a unique way, unknown in other countries. India has the world's highest number of adults with cataracts. To fight this national scourge, Aravind developed very low cost but quality cataract surgery, based on a Taylorised type of organisation supported by a large volume of surgical procedures. Medical and paramedical staff toured the outskirts of large and medium sized towns to screen for cataract and other eye diseases. By 2007, the system was organised on efficient, optimal, patient-oriented and economic lines. The results are summarised in Table 1.

Essilor India formed a partnership with Aravind to facilitate client access to visual aids outside city centres. Essilor India suggested to Aravind, which was operating in outlying districts to screen for cataracts, that on-the-spot prescriptions for visual defects and the immediate sale of spectacles could be added to the services provided in their mobile vans (Table 2). Specialised vans were added behind the Aravind trucks for this purpose and the synergy was an immediate success. Essilor vans were soon struggling to keep up with demand.

However, rural areas, where the daily income is approximately one dollar, were still out of reach. Spectacles sold at the time in the cities cost a minimum of $7.5. We analysed in more detail the situation in the countryside. We discovered that there was a market for renting eyeglasses from the mayor or peddlers on a time basis – on average a quarter of an hour – or however long was needed to read a letter or do some fine needlework. The cost of rental was around one Rupee for a quarter of an hour (Figure 4). In order to gain a better understanding of the constraints on rural populations, in 2004, in association with the Aravind Eye Hospital with whom we were already working in partnership, we launched a study on the obstacles blocking access to eye care or the purchase of a pair of glasses. The findings were that there were two main causes which, together, were given in 78% of responses: lack

Table 1. Multiple channel approach.

Aravind, cataract surgery for all in India	
Surgical procedures in 2007	250,000
Per surgery	$20
Hospitals	5
Vans prospecting	10

(Far and away the largest operator worldwide.)

Table 2. Aravind's war against "Cataract".

The Aravind van
Visits to medium sized towns (10,000 inhabitants and over)
On average, 1,000 eye-sight examinations per town
Triage of patients to hospitals
Tests for sales of ophthalmic lenses at $4. An enormous success!

of time and the need for someone to accompany the patient.

In practical terms, it appeared that this need for a helper and the time required to get a pair of glasses made would cost a villager at least $6, over and above the cost of the eyepiece itself. For a villager, going to a hospital in the nearest town takes at least a day in the most favourable circumstances, that is if the journey into town and back and the time spent at the hospital can all take place in the course of one day. As it is not the custom in India to go alone on such an expedition, this means a second person is involved and a second day's work is lost. Furthermore, the whole operation requires at least two visits to the hospital: one for the diagnosis and the other to try on and pick up the glasses. The total is therefore a minimum of four days, or even twice that length of time when the village is remote and the journey itself takes a full day. With an income of one dollar per day per person, the time constraint alone represents $4 in lost earnings. To these $4 must be added the cost of transportation which can be estimated at around $2. The sum of all these expenses must be added to the price of the eyepiece itself so that, altogether, it far exceeds what most people can afford to spend. Apart from rentals, second-hand glasses are donated, but results are rarely satisfactory as the right lens or the left lens rarely correspond to the appropriate prescription individually and even less frequently both together, so that the visual correction is always very random. Such gifts are frequently rejected anyway because the inability to choose the frames is often felt to be a loss of dignity.

The task ahead was therefore clearly set out for us: design and produce very inexpensive eyewear which people could obtain without needing to travel and for which they could choose their own frames. Obviously, we would have to supply lenses of the right prescription for each patient and mounted in such a way as to fit the positioning required for each patient's features.

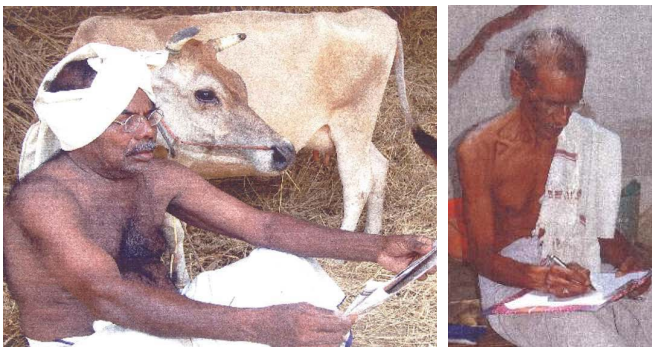

Figure 4. Spectacles at your door step.

4 The birth of a new economic model

4.1 Innovation combined with cost reduction

To arrive at the minimum price acceptable for the base of the Indian pyramid, we were obliged to review all the production costs and invent new distribution patterns. The extent and diversity of the Essilor range of lenses worldwide gave us a very extensive selection from which to choose. It ranged from the simple, but good quality, basic lens to the optimal high technology – or even made-to-measure – item with a large number of additional features besides visual correction.

In order to adapt our offer to the market segment at the base of the pyramid, we aligned our production with local cost factors. We used the Indian lens production site, whose staff took a personal interest in substantially simplifying the manufacturing process. The moulds used for production came from one of the Group's American plants and were already amortized, so that investment costs were reduced. The frames were imported from China at very low cost. As a result, our production costs were reduced to a level that was affordable for people whose purchasing power was very low. Distribution costs were also adjusted to fit in with local characteristics and requirements. With hindsight, it was in this respect that Essilor was being most creative.

4.2 In search of new distribution methods

We thought of several economic models and at first had to face many challenges. One particular model which we considered very closely involved setting up of several small workshops, supply them stocks of finished lenses & frames, in areas with a 15 km radius, accessible using a bicycle. The heads of each sector would be in charge of a potential of several thousand clients. They were to go to villages, measure eye-sight, take a small down payment and return to the workshop to order the equipment and monitor production (Fig. 5). The estimated cost of operation would have been as follows: € 2.5 to the workshop manufacturing the frame + € 2.5 to the trader + € 2.5 for the lenses and frames. However, we felt that this model may not be feasible in case we don't get the adequate volumes. Also in the meanwhile we realized that the

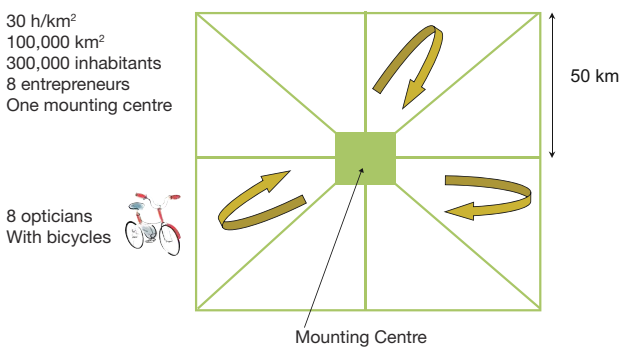

Figure 5. Indian village 300 km from Bangalore.

"Caravan System" would work better than this as it provided instant service without any waiting period and also since its mobile the catchment area will always be more than a stationery unit.

We reverted to the caravan system that we had developed for the suburban environment and adapted it to fit the rural situation. However, for the rural environment, our caravans were no longer associated with the Aravind mobile units (although we did engage later in a new partnership with "Sankara, Nethralaya", another hospital specialising in cataracts working on principles similar to Aravind's). In order to improve service and profitability, we added to the supply of spectacles another essential function: an optic fundus exam. Our caravans are equipped with highly sophisticated instruments to measure the optic fundus and a transmitter which sends the results of the observation via the Internet to a qualified medical complex in town, where they are received and interpreted on a continuous basis. As soon as a "sick" eye is detected, the villager may be called in to the hospital by the doctor (Figure 6). As the crux of the problem was the volume of clients at each visit, we then thought of alerting mayors and asking them to warn their villagers of the opportunity of having eyeglasses made for them, of registering in advance for the eye examination that the Essilor caravans could provide, and informing them of the price they would have to pay. In this way, before the caravan even arrived on the scene, one hundred to one hundred and fifty people were ready to be examined. This reduced the cost of distribution to a minimum (the multiple of three commonly found in opticians' shops was considerably reduced). A further advantage was that patients knew in advance how much they would have to pay and could therefore save the required amount beforehand. As a result, payment-collecting problems were eliminated. This was the essential breakthrough: warning our clients in advance and preparing the ground for the arrival of our caravans (Figure 7). The refraction is done free of charge and the patient has to be pay only the cost of the equipments which on an average ranges from $4 to $6.

In practice the operation is organised in the following way: a delivery van is equipped with diagnosis instruments suitable for relatively simple conditions, a stock of corrective lenses and frames. The team is made up of five people, including the driver, two optometrists, a sales-person and an assistant in charge of schedules. The team is locally employed so as to keep the service affordable and to make sure they speak the language in their distribution area. The team sets out with the van twice a month for a period of twelve days according to a pre-planned itinerary. On average, they stop two days in each village.

Currently, four vans are touring four different regions. The first was launched in June 2006 to tour the rural areas of Karnataka in south India; the second followed in December 2006 and covers part of the Uttar Pradesh territory in north India; the third started in April 2007 in Tamil Nadu, a State in the south; and the fourth began touring Maharashtra in the west of the country, early in 2008 (Figures 8 and 9). Between June 2006 and April 2008, the pilot caravan tested the vision of 64,882 patients, wrote 41,813 prescriptions, and sold 8,681 frames and 17,362 lenses.

The equipment costs an average of $5, which compares favorably with the minimum of $6 that patients paid for the journey alone before the vans began to operate. Some transactions are as low as $3.50. The van for which we did an economic performance evaluation was able to make a profit over 22 months (Table 3).

Figure 6. People waiting for screening.

Figure 7. The Sales Person informing villagers about the Caravan.

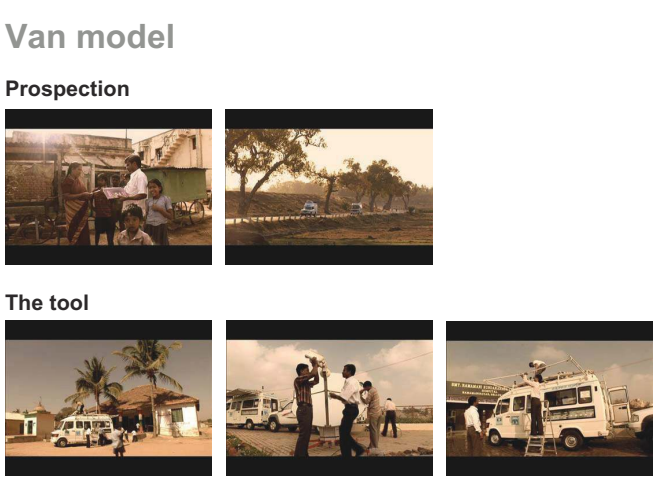

Figure 8. The Caravan starting its operation in a Village.

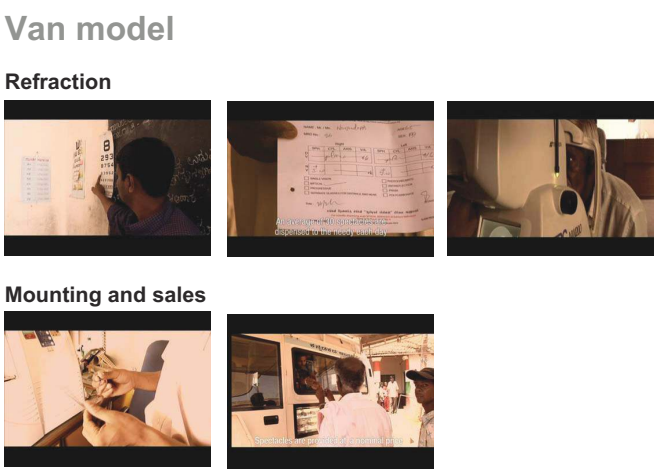

Figure 9. Refraction and dispensing of spectacles in the Caravan.

5 Discussion

5.1 A profitable model which is attracting the attention of other entrepreneurs

In our view, it was essential to provide access to prescription eyeglasses under conditions that were economically viable. Our company philosophy is that economic profitability is a much safer guarantee of the sustainability of an enterprise than a model founded on purely humanitarian motivations. We therefore believe that sustainable development – in this particular case – equals market economy. By paying attention to the economic profitability of the scheme, we managed to reduce costs and arrive at a price affordable for the consumers at the base of the pyramid.

In order to roll out our model in India, Essilor then searched for entrepreneurs who would be interested in investing in these small mobile operations. Several major opticians responded immediately and wanted to be associated with the undertaking. As a result, some fifteen caravans will most likely be touring in India by mid-2010.

Table 3. Proforma Operating Account.

Sales	
Equipment @ $5 per equipment X 9000 equipments	45,000
Sponsorship	8,000
Sunglasses	1,000
Sub-total:	**54,000**
Costs	
Salary @ 5 X 120*12	7,200
Commercial expenses 9000 X 2$	18,000
Fuel	10,000
Depreciation	11,000
Boarding expenses	3,000
Sub-total:	**49,200**
Results	**4,800**

Teams are given lodging by the municipal authorities

5.2 Can this model be generalised?

Currently, the model is still in the development phase and limited to India. Will the increase in volumes sold by this pilot project generate a learning curve which could be rolled out to other parts of the world? We are now considering how to deploy the mobile units in a different context. The desire for extension is supported by the Group's commitment to sustainable development, that is, making it possible for the greatest number of people to enjoy good vision.

The innovative model we launched in India can serve as an example, but it is based on very specific partnerships and a particular local context. The fundamental point here is the high density of the rural population in the Indian countryside. As every market has its own distinctive characteristics, the general concept must be tailored to the conditions prevailing in each country. The basic functionality of the product itself (visual correction) is not in question: a simple, economic, bottom-of-the-range lens corrects just as effectively two different shortsighted people with different purchasing powers. Access to service depends entirely on the mode of distribution, which is where appropriate solutions need to be found. In this context, we are rolling out our strategy on the basis of a common starting point: using the support of professionals in eye care. They are an essential safeguard and they consolidate the country's formal economy. As in any emerging partnership, the enterprise has as its objective the success of its partners, which will in turn contribute to its own success.

In effect, the Indian model of distribution cannot be exported directly in its present form. In Africa, for instance, villages are often very far apart in areas where the population density is much lower than in India.

In conclusion, it is worth noting that there is an element of coherence in market structures, even though they may be vastly different in other ways. A pair of spectacles in rural India costs about five days' work. Five days' work in France adds up to about €300, which is equivalent to a middle-of-the-range price for a frame fitted with spherical lenses. This homotheticity supports our analysis and could serve as a guide for rolling out the model in other countries.

Acknowledgements. We want to thank École de Paris du management.